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SANITARY COMMISSION.  
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REPORT

OF A

Committee of the Associated Medical Members

OF THE

SANITARY COMMISSION,

ON THE SUBJECT OF

CONTINUED FEVERS.



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THE attention of the Sanitary Commission has been directed to the fact, that most of our Army Surgeons, now in the field, are unavoidably deprived of many facilities they have heretofore enjoyed for the consultation of standard medical authorities. It is obviously impossible to place within their reach anything that can be termed a medical library. The only remedy seems to be the preparation and distribution among the medical staff, of a series of brief essays or hand-books, embodying, in a condensed form, the conclusions of the highest medical authorities in regard to those medical and surgical questions which are likely to present themselves to surgeons in the field, on the largest scale, and which are, therefore, of chief practical importance.

The Commission has assigned the duty of preparing papers on several subjects of this nature, to certain of its associate members, in our principal cities, belonging to the medical profession, whose names are the best evidence of their fitness for their duty.

The following paper on "Continued Fevers" belongs to this series, and is respectfully recommended by the Commission to the medical officers of our army now in the field.

FRED. LAW OLMSTED,  
*Secretary.*

WASHINGTON, Dec. 6, 1861.



A SUMMARY  
OF THE  
SYMPTOMS, DIAGNOSIS, AND TREATMENT  
OF  
CONTINUED FEVERS.

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FEVERS are divided into Essential or Idiopathic, and Symptomatic; the latter depending solely on some local affection, are not considered here. The former are subdivided into Remittents, Intermittents, and Continued Fevers, to which may be added, as coming strictly into neither of the above families, Yellow Fever.

From the widely extended field of its operations, most of the above-named diseases are prevalent in our army, and all, in their every variety and form, may sooner or later be looked for. It will come within the scope of this paper to deal with Continued Fevers only. Of these there are three,\* viz :

IRRITATIVE FEVER, (so called,)  
TYPHOID FEVER, and  
TYPHUS FEVER.

We propose to give, as concisely as possible, the ordinary diagnostic characteristics of these diseases, with some of their symptoms and causes, together with a brief summary of treatment.

\*The *Relapsing Fever* of Great Britain is omitted in these descriptions, being rarely if ever seen in this country.



## I. IRRITATIVE FEVER.

(Syn.) *Simple Fever, Ephemera, Febricula.*

A fever lasting only about twenty-four hours has been described by some writers under the name of *Ephemera* as distinct from *Febricula*; but they may be better treated as gradations of the same disease passing by insensible degrees into each other, and differing only in intensity.

By the term Irritative Fever is meant that condition of the system which is manifested by a hot skin, a quick pulse, and white tongue, &c., continuing from two to seven or eight days, and referable, so far as our powers of observation go, to no peculiar or specific agency or local disease as its cause.

COURSE AND SYMPTOMS.—It begins with rigors, generally slight, often imperfectly marked yet sometimes severe, followed by chilliness, headache, pain in back and limbs, and soon succeeded by ordinary febrile reaction—a dry hot skin, frequent pulse, furred tongue, loss of appetite, thirst, constipation, scanty urine, and diminution of the secretions generally. There is no cough, nor physical signs of the chest or abdomen. The symptoms increase in severity for three or four days, and after five, six, or seven days disappear as suddenly as they began,—a critical discharge, a deposit of urates or a copious sweat, in many cases, marking the moment when the patient regains his health.

CAUSES.—Very numerous; exposure to cold or intense heat, errors of diet, a debauch, over-exertion and fatigue, the presence of febrile epidemics, &c. Soldiers, after a fatiguing march exposed to cold and wet, if they afterwards remain with their damp clothes upon them, are apt to be thus attacked.

PROGNOSIS.—Uncomplicated, it is never fatal; local inflammations are occasionally set up in its course.

DIAGNOSIS.—From the severer kinds of fever, generally by the mildness of its accession and symptoms; great caution is however to be observed here. From the phlegmasia, by the absence of any discoverable local affection.

TREATMENT.—In ordinary cases very simple. If great vascular excitement or signs of active cerebral congestion exist, venesection to the extent of from eight to sixteen ounces may be resorted to in a strong man; but this is seldom necessary. Generally an efficient cathartic at the outset, followed by refrigerant diaphoretics, with proper attention to regimen, is all that is required. In the choice of a cathartic, be guided by circumstances. If febrile excitement is intense, sulphate of magnesia, alone or with *inf. sennæ*; if symptoms of acidity be present, the pure magnesia may be added; for hepatic congestion and deficient hepatic secretion, give two or three comp. cath. pills. Eight or ten grains of Dover's powder at night, will generally be of service. If the fever lasts beyond a day or two, the bowels must be kept regularly open by saline cathartics, with the diaphoretics above-named in the intervals. All excitement is to be avoided, rest and strictly farinaceous diet enjoined; cold water and simple acidulated drinks, but no stimulants allowed. Should inflammation in any organ be developed, the case is to be treated exactly as an ordinary phlegmasia of that organ.

## II. TYPHOID FEVER.

(Syn.) *Com. Continued Fever, Enteric Fever, Abdominal Typhus, Dothin Enteritis.*

This is the ordinary endemic fever of New England, and of those portions of the United States in which the miasmatic or bilious fevers do not prevail. The official army reports show it to be more or less mingled with the latter also within their own especial limits, and rarely to be entirely absent, indeed, in any part of our country.

### GENERAL DESCRIPTION OR PORTRAITURE OF THE DISEASE.

An acute affection, resulting from an obscure if not unknown cause, occurring oftenest between the ages of 16 and 33, most prevalent in autumn and winter, but occurring at all seasons, having an average duration of from 21 to 28 or 30 days, sometimes sudden, but more often gradual and insidious in its approach ; its access,—after a few days of indefinable illness and discomfort, headache, inaptitude for bodily or mental effort—being attended with chilliness, usually slight and often repeated, soon followed by more or less febrile heat of the skin, accelerated pulse, and respiration ; a whitish furred tongue ; slight, dry cough ; sonorous râles ; pain in back and limbs ; apathy, anorexia, thirst, a tendency to diarrhœa, occasional epistaxis ; vertigo, especially in assuming the upright position ; tinnitus aurium, hebetude of mind ; as the disease advances, loss of muscular strength, perversion of the intellect, low delirium, increased diarrhœa, tympanites, pain in abdomen, tenderness and gurgling over iliac region ; dry, hard, brown, or black tongue ; with the appearance, after the 10th or 12th day, of a peculiar eruption, coming out in successive crops, of a delicate rose color, few or many, which vanish under pres-



sure, confined mostly to the anterior and posterior surface of the trunk, attended by sudamina on the chest and neck; still later, in severe cases, increased abdominal pains and tenderness, meteoric distension, frequent diarrhœa, sordes, subsultus and sinking of all the vital powers, and death from the second to the fourth week; or, at a variable period between the 12th and 30th day, a gradual diminution of all the symptoms, merging in convalescence and recovery.

CAUSES.—Its essential causes are by no means well determined. Age as a predisposing cause, recent residence in town, and, at times, contagion, (to those who are constantly in immediate relation to the sick only as a rule,) are the circumstances and conditions that may give rise to the disease. Among the immediate causes must be named the ordinary excitants of disease in camps—errors in diet, excesses, exposure to cold or heat, extreme vicissitudes of weather, strong moral impressions, &c., &c. Soldiers recently from the country, quartered in or about our large towns and cities, are more than ordinarily subject to this fever.

FORMS AND VARIETIES.—This disease is liable to present itself under different phases or forms in different seasons, and in different localities, and often, at different times, in the same season and locality. Such are in general the inflammatory or sthenic, and the debilitating or asthenic. But these differences in form, it is believed, belong rather to the first stages of the disease, adynamia almost always marking its later periods. There is also a *latent* form of the fever, in which the symptoms from the outset are of the mildest character. The patient, unable to fix upon any particular day as that on which his illness commenced, feels

ill, weak, languid, chilly, loses his appetite, and suffers from slight frontal headache. He is listless, unapt for his usual occupations, lounges about, perhaps lies down for a part of the day, and, feeling better, makes an effort to exert himself, goes out, but soon returns fatigued, and lies down again. At night there is generally some increase of the symptoms denominated febrile, the pulse rises, the skin is hot, and the patient is restless and uneasy; some days he is better, some days worse; there is no discoverable lesion, there may be a little cough, with slight sonorous râle, or there may be some leaning towards diarrhoea, with a little pain and tenderness in the abdomen. There exists no tangible disease, but the symptoms continue for days and weeks, without abatement or much variation. Such case may terminate in two ways—slowly after a month or five weeks, in the gradual disappearance of all the symptoms and returning health; or, suddenly, with intense abdominal pain and vomiting, extreme distension, coldness of surface, sinking, and death from perforation of the intestines.

**DIAGNOSIS.**—This must be rational, not absolute—that is, not founded on a few positive physical signs. There is no one symptom,—there are no two or three symptoms which, in themselves, are characteristic of the disease; nor is there any one symptom or group of symptoms, usually occurring, which may not be absent during its entire progress. The most common and marked characteristics are its insidious attack, the early headache, apathy, dulness and perversion of the senses, tinnitus, dry cough and bronchial râles, tendency to diarrhoea, epistaxis, pains in abdomen, tenderness and gurgling; and, later, the appearance of the rose rash with sudamina, tympanites, light-colored liquid stools, stupor,

low delirium, and adynamic condition generally. These, in mild, average, and severe cases, being mostly present, leave little doubt of the nature of the malady. It is important early to recognise the latent form described above, and the value of the precautionary measures it naturally suggests. The disease may be confounded, in its early stages, with the bilious remittent, if within the sphere of the latter affections,—especially if, as is believed by Dr. George B. Wood, the two diseases may be somewhat commingled in consequence of the co-operation of their causes; cases, (as that distinguished authority asserts,) having all the essential characters of typhoid fever, occasionally ending in intermittents; and bilious fevers or affections which cannot be distinguished from them, sometimes showing the symptoms of typhoid fever during their progress. But the pure remittents may be commonly known by their more decided remissions, the bilious vomiting and yellowness of skin, shorter duration, more abrupt accession, and absence of the prominent adynamia or general prostration; the rose eruption, of course, is never seen. A hasty diagnosis, in miasmatic regions particularly, should be avoided; and while in doubt, give the benefit of the doubt in favor of the disease now under consideration.

**TREATMENT.**—Various, and, to some extent, opposite modes of management have, at different times, been advocated and adopted. The balance of authority is in favor of a rational, symptomatic, expectant plan of treatment, adapted,—as far as common sense and experience will enable us,—to the varying state and condition of the patient in different forms of the fever, and the several stages of its progress. In few diseases are the beneficial effects of active

medication less marked and obvious. In no disease is the benefit of the watchful care and attention of the physician more apparent.

At the first onset of the disease, the patient should desist from his ordinary duties, abstain from food except of the mildest and simplest kind, and be placed in bed, or, at least, in a state of repose. Attempts to jugulate the fever by violent emetics and cathartics, are opposed to reason and experience, and may prove of incalculable mischief in the end; and all delay and forced efforts to "stave off" the attack will prove of no avail. At the commencement of the disease, if the patient has eaten immoderately, or signs of irritable injeſta in the ſtomach are preſent, an emetic of ipecac 3 ſs. may be adminiſtered. The bowels ſhould alſo be evacuated by a mild cathartic, ſufficient to clear them of all irritating matter; a moderate doſe of caſtor oil, either alone or in emulſion, will do this effectually and without danger. Afterwards, the bowels ſhould be kept moderately open during the whole courſe of the diſeaſe. Often there is diarrhœa throughout, and always an unuſual ſenſitiveness to the influence of cathartic medicines; the gentleſt laxatives, therefore, and thoſe in ſmall doſes, will be ſufficient. If the evacuations are free and ſpontaneous, none will be required; if gaſtro-inteſtinal irritation be ſevere, mucilaginous enemata ſhould be ſubſtituted. But all unneceſſary agitation of the inteſtinal track is to be ſcrupuloſly avoided, bearing in mind the great ſenſitiveness of that region and the peculiar leſions, which, in all forms and grades of the diſeaſe, are the eſſential pathologiſcal elements of the fever in queſtion.

Sometimes in its early ſtages, in a plethoric and robuſt patient, when the pulse is full and ſtrong, and there is



much pain in the head, flushed face and obvious active congestion or inflammation of the brain or other vital organ, a single bleeding may possibly be resorted to with benefit. This, however, is the very rare exception, not the rule; and a few leeches to the temples or in the immediate vicinity of whatever important organ is thus threatened, are almost always to be preferred, if blood is to be taken at all. Experience is decidedly against it under any circumstances, after the first week. If now the case become of moderate or even average severity, all perturbing treatment is to be avoided. Care, watchfulness, and good nursing is the sum and substance of the therapeutical management in such cases; the tendency of the disease is towards health, and there is no evidence that the dangerous complications, which are likely to occur, can be prevented by any active interference. In severer attacks, the symptoms must be met as they occur, having due regard to the vigor and strength of the patient. To moderate excessive heat of the skin, warm, tepid, or cold sponging is indicated; where there is much debility, diluted spirit may be substituted. The nervous symptoms, restlessness, wakefulness and subsultus, are best alleviated by camphor-water or Hoffmann's anodyne, and by opiates in small quantities, when not contra-indicated, at night; laudanum enemata are of great value, when sleep is required to be induced in such cases, and tend rather to diminish than increase cerebral congestion. But for excessive subsultus with a brown tongue, brandy is the appropriate remedy. Simple diluent drinks are, at all times, beneficial;—of these pure cold water is the natural febrifuge; a weak infusion of flax seed (3 ss. to water Oj.) taken when cold, often and in small quantities, is especially appropriate and always palatable and grateful to the patient; give them

abundantly, as often as they may be desired. If tympanites is extreme and painful, a mucilaginous enema containing 3 ss. of turpentine will oftentimes give signal relief. Blisters to the ancles and inside of the calves will sometimes revive the patient, when the lungs are congested and he is seemingly in articulo mortis.

In the debility attendant upon the advanced stages of the disease, tonics and stimulants become absolutely essential; they must be adapted in activity to the degree of prostration, and yet must be exhibited with caution. The precise points at which stimulants are demanded is often a nice question to determine. The early appearance and persistence of an adynamic condition may call for their adoption at the outset, and during the whole course of the disease; in such cases they are to be given boldly, without reference to any dogmas of their contra-indication in certain stages. The pulse is a safe guide; if frequent, hard, and quick, stimulants are contra-indicated,—if frequent, small, and compressible, or infrequent and compressible, they may be given with safety. In doubtful conditions, the practitioner should carefully watch the effect himself, administering the medicines, if need be, with his own hands. On his faithfulness in this particular, the life of the patient may depend. Among the most efficient of these agents are the pure wines, brandy, and the carbonate of ammonia.\*

\* Among the most suitable of the stimulants is *wine whey*. It should be prepared by adding one part of good (Sherry) wine to two parts of boiling milk, and straining after coagulation; of this from a tablespoonful to a wine-glassful may be given every two hours. *Brandy* is often advantageously administered in the form of *milk punch*, made with one part of brandy and two parts milk, and given in doses of one, two, or three tablespoonfuls every hour or two. *Carb. ammonia* should be administered in doses varying from grs. ijss. to grs. x. every hour or two, and is best given in emulsion. The following

LOCAL AFFECTIONS AND COMPLICATIONS.—Where there is obstinate delirium and coma, the head should be shaved and a blister applied to the scalp. In copious and alarming epistaxis, occurring at any stage of the disease, recourse must be had to plugging the nostrils anteriorly and posteriorly. Hemorrhage from the bowels, a grave but by no means an invariably fatal symptom, is to be treated by injections of starch with laudanum, by the ascetate of lead in pill, or other astringents. Dr. William Ashmead has found great efficacy, in *threatening cases* of intestinal hemorrhage, from the administration of kino in large doses. Dr. Wood has employed the same remedy in such cases with signal success. He uses it “almost without limit,” as “freely as the stomach will tolerate it.” Thus “a teaspoonful of the powder may be given at once, and repeated at such intervals as the case may seem to require, till the hemorrhage ceases.” Laryngeal obstruction from œdema—a peculiar and dangerous complication—sometimes occurs in this and other low fevers, requiring immediate and prompt attention by scarification of the glottis or tracheotomy. Peritonitis from perforation can only be treated by the exhibition of large doses of opium, abstinence from all food, and absolute and motionless rest, and this with a well-nigh hopeless chance of success. Sloughing, in tedious cases, may be obviated by frequent changes of posture, and a judicious use of pillows of bran. In the aggravated forms of the fever, the state of the bladder should be daily attended to.

formula may be used:  $\mathcal{R}$ . Am. Carb.  $\mathfrak{z}$ ii., Acaciæ pulv., Sach. alb. aa.  $\mathfrak{z}$ ii., Aq. Ment. p. vel. Aq. fluv. f.  $\mathfrak{z}$ vi. M. From a teaspoonful to a tablespoonful to be taken every hour or two, diluted with a little water.—*Note to Wood's Practice of Medicine.*

When stimulants are moderately required, and in the hemorrhagic state, a judicious use of the tinct. chlo. ferri. is often advantageous.

A peculiar state of the tongue, seen not unfrequently in this disease in advanced stages, has been considered as indicating an aggravation of ulceration in the ileum, and is often treated successfully by the administration of the oil of turpentine in small doses; it is when in the advanced stages of the disease, after cleaning partially in flakes, the tongue becomes suddenly hard and dry, with increase of tympanites and aggravation of all the other abdominal symptoms. In such cases, Dr. Wood advises the administration of from five to ten or fifteen drops of the oil, in emulsion with gum arabic and loaf sugar and water,—adding a little laudanum occasionally if it disturb either the stomach or bowels. In the course of twenty-four or forty-eight hours the tongue becomes moister, the tympanites diminishes, the pulse is less frequent, the skin less harsh and dry, and the patient enters slowly but regularly into convalescence. Thirty years' of experience has convinced this accurate observer of the efficacy of the treatment in such cases.

When the disease is evidently of malarious origin, or is complicated with bilious remittent,—as it may be in districts where the miasmatic fevers prevail,—and especially if, under such circumstances, an intermittent form of the fever supervene, bark, or the sulphate of quinine should be used without hesitation, and with a freedom proportioned to the urgency of the symptoms. But the general and indiscriminate use of quinine in this disease cannot be too strongly condemned.

*Attention to the diet* is all-important throughout. In the early stages it should be light, consisting of liquid substances chiefly; the infusion of flax seed, toast water, barley water, weak solutions of tapioca, sago, or arrowroot, are mostly to be employed; gruels made of Indian meal are to



be avoided. Slightly acidulated drinks or pure water may be given, as the patient prefers. In the advanced periods, when symptoms of debility appear, a more nutritious but not stimulating diet is necessary. The farinaceous articles above mentioned, made with a mixture of one part water and three parts milk, may now be given ; wine, if desirable, may be added. Pure milk or milk and water may be substituted with benefit. And in the last or prostrate stage, the diet must not only be nutritious but stimulating, such as the animal broths or jellies, with wine, milk punch, or brandies, or, if these cannot be had, the essence of beef and mutton.\*

*During convalescence* the closest watchfulness and care is demanded ; the bowels are to be kept open by the mildest laxatives or emollient enemata, but active purgation, premature exposure, fatigue, excitement, and all indiscretions in diet are to be scrupulously avoided.

\* *The essence of beef or mutton* may be prepared in the following manner. The muscle, deprived of fat, is cut up finely, and introduced without water, into a narrow-necked bottle, which, after being loosely corked, is exposed for an hour or more to a boiling heat in a pot of water, in which it is so placed that the top of the bottle is above the surface of the liquid in the pot. At the end of the process, the liquor which may have formed in the bottle is poured off and constitutes the preparation in question. It is a concentrated solution of the soluble principles of the meat, is powerfully stimulant, and in the quantity of from a teaspoonful to a tablespoonful, repeated at intervals of half an hour, an hour, or two hours, aids greatly in the support of the system in this and other low states of disease.

### III. TYPHUS FEVER.

(Syn.) *Typhus gravior, Ship Fever, Camp Fever, Hospital Fever, &c.*

SKETCH OF THE DISEASE, *involving its prominent symptoms and progress.*—It is an affection sudden and severe in its accession, common to all ages, ushered in by lassitude, depression, rigors, anorexia, headache, pains in back, limbs, and joints ; accompanied or soon followed by loss of strength, dullness of the intellect and special senses, perversion of memory, stupor, dusky and hot and pungent skin, flushed face, suffused eyes, furred and loaded tongue, accelerated but moderately full, soft, and compressible pulse ; without any considerable deviation, in its simple uncomplicated form, from a normal condition of the chest and abdomen ; general sensitiveness of surface, a strong peculiar nauseous odor of the body ; exhibiting, on or about the fifth day, an abundant characteristic rash, first seen on the arms, upper part of the chest and legs, later on abdomen and back, never on the face, the approach of which is heralded by an indistinct mottled and roseate appearance of the surface, seemingly subcuticular, which rash is at first light, pinkish, florid, isolated or clustered, simulating not unfrequently the eruption of measles, then darker, more or less persistent, increasing in abundance and intensity for several days, sometimes livid and petechial, fading on or about the tenth day, and disappearing in the order in which it came from about the twelfth to the sixteenth day ; which symptoms may vary in intensity and relative importance, may vacillate from better to worse, from worse to better, or remain stationary, or diminish in intensity till they are merged in convalescence ; or may be aggravated and receive accessions,

the tongue become dry, swollen, fissured, black, with accumulations of sordes on teeth and lips, fuliginous face, burning skin, livid and petechial spots, hurried, interrupted, imperfect respiration, an exceedingly rapid, feeble pulse, extreme muscular prostration, coma vigil or great nervous agitation, simulating at times the busy excitement of delirium tremens, with sometimes coolness of surface and profuse sweating, terminating, at a variable period between the twelfth and twentieth day, often earlier, rarely later, in death.

CAUSES.—Our knowledge of its efficient causes is limited and imperfect. Among the circumstances most frequently associated with its appearance are the crowding together of persons in dark, damp, badly-ventilated apartments, coupled with anxiety, fatigue, want, deprivation, and misery. The very intimate connection of typhus with crowded and confined apartments, where the excretions and filth is allowed to accumulate, has been universally admitted; hence the disease has often made its appearance in camps, ships, hospitals, and garrisoned towns. “This is the pestilence which dogs the footsteps of retreating and discomforted armies, and takes up its dwelling in their tents—which hides itself within the noisome walls of ancient prisons.” Its history shows it to be often dependent upon that unknown influence, or combination of influences, to which the term epidemic has been applied. And when once engendered, from whatever cause, it has been almost universally regarded by those whose opportunities have best fitted them to know, as capable of direct transmission by contagion.

Yet the disease must not be held as contagious in the same sense that small-pox is contagious, viz: that it is

invariably and virulently so. Certainly the sphere of action is more limited, the communication of the poison more dependent on circumstances, and the morbid influences more within the control of sanitary laws and regulations than in the usual zymotic, or so called contagious maladies. It may be stated in general terms that the contagion, to be effectual, must be concentrated by the crowding together of patients, or accumulated and aggravated in ill-ventilated and pent-up rooms, or stimulated by the conjunction of other unfavorable hygiene conditions, ill-drainage, filth, effluvia, &c., &c., or the recipient have been previously subjected to the predisposing causes, by deprivation, hardship and want, excesses, anxiety, fear, despondency, mental and physical exhaustion, or debility from any cause, till his system has been brought to a point below the power of resistance. It follows that immunity from the reception of contagion in the exposed, and from an aggravation of horrors on the part of the sick, is to be obtained as far as possible, by a strict observance of the well-known maxims of hygiene—first and foremost amongst which is the possession of a stout heart and the sufficiency of the light and air of Heaven. Hence an explanation of the fact that, in the sheds and shanties, open to the elements, which of necessity have been resorted to when the disease has sprung up suddenly and prevailed extensively, both patients and attendants have fared the better.

VARIETIES AND FORMS.—These are only such as depend upon different degrees of severity, and are more or less constantly connected with the different seasons of the year. Some epidemics may be characterized as mild, others as severe; and, in the same visitations, may be found every grade between the two extremes. During



the winter and spring the fevers will most likely be complicated with pulmonic affections; in summer and autumn with gastro-intestinal irritation, perhaps; and, at uncertain times and seasons, grave consecutive affections may supervene.

DIAGNOSIS.—Among the chief characteristic symptoms, are the following: abruptness of the attack, the early and great prostration, the rash, the dusky hue and sensitiveness and peculiar odor of the surface, the passive engorgements, tendency to muscular and nervous agitation, and freedom from important local derangements. Thus the accession is sudden, preceded only by a day or two of trifling ailment, and accompanied very uniformly by anorexia, rigors, nausea, pains, hot skin, depression, and headache. The depression is an early and almost constant attendant; the strength soon becomes exhausted, the mind and memory confused, and the spirits despondent. This exhaustion continues till, in the acme of the disease, the powers are completely overwhelmed. The hot skin is often excessive. It is peculiar, dry, burning and pungent to the feel. On the fifth or sixth day the characteristic rash appears. The dusky face and fuliginous hue of the body is a common accompaniment; it is noticed early and deepens as the fever advances. Conjoined with this, and bearing an appreciable relation to its intensity, is the marked and pungent emanation from the general surface, which has been previously described as mousey, mawkish, ammoniacal, &c., furnishing to another sense a testimony of the specific nature of the malady. A muscular unsteadiness is early apparent—a tremulousness of the hands, and of the tongue, the culmination of which may be spasms and convulsions. Delirium, in greater or less degree, is an almost constant concomitant. It is not unfre-

quently accompanied by the wakefulness and excitement and busy activity of delirium tremens, which it closely resembles. More often, the early somnolence is attended by muttering and talking, a state which generally passes into stupor or coma, the patient lying supine and utterly unconscious. The respiration is peculiarly affected; it becomes quick and labored—it is impeded and interrupted, amounting sometimes in frequency to forty, fifty, and even sixty in the minute. And yet there is remarkable freedom from any important structural disease. The diagnostic marks of cerebral inflammation are wanting. Auscultation and percussion fail to detect any abnormal signs in the chest. The abdomen is natural in appearance, and free from any considerable tenderness or tympanites. There is no diarrhoea. The bowels may be a little relaxed, but the stools are regular and easy in their action. More often there is a tendency to constipation throughout. Neither the liver, the kidneys, the stomach, nor the intestines give evidence of any especial organic disturbance.

**TREATMENT.**—*In general*, pure air, cleanliness, quiet, and good nursing are all important requisites. Bland nourishing food and drinks, given frequently and in small quantities, are in most cases demanded throughout the whole course of the disease. Conjoined with such hygienic measures, the use of mild evacuents, of diaphoretics, nervous, and arterial sedatives or stimulants, as the case may require, together with the usual means to mitigate febrile action, constitute the whole of the general plan of treatment. The details must be varied according to the circumstances which may arise during its progress, so that while the general management of the case may safely be trusted to the faithful and intelligent nurse, it is the province of the physician to

obviate injury to the vital functions, and combat in turn the graver symptoms as they present. Measures should be early adopted to prevent the spread of the fever by contagion. We have already named the conditions under which this element becomes active. Happily the conditions required for its amelioration are those which experience has shown to be best for patient.\*

Should wards and walls be necessitated by the rigors of the season, blazing fires and open windows become imperative; and here, as already suggested, due attention to ventilation, cleanliness, and the non-crowding of patients, will go far to lessen the chances of communication.

In the formative stage, that is, on the *first day* of the sudden accession of symptoms of the fever, (not later,) if

\*The following rules the observance of which is enjoined by the Government of the London Fever Hospital, might well be adopted under similar circumstances in Military Hospitals, *passim*.

"I. It is of the utmost importance to the sick, and their attendants, that there be a constant admission of *fresh* air into the room, and especially about the patient's bed—care being taken to prevent the wind from blowing directly on the patient.

"II. Attention to *cleanliness* is indispensable. The linen of the patient should be often changed; and the dirty clothes, &c., immediately put into fresh cold water, and afterwards well washed. The floor of the room must be cleansed every day with a mop, and all discharges from the patient immediately removed, and the utensils washed.

"III. Nurses and attendants ought to endeavor to avoid the patient's breath, and the vapor from the discharges.

"IV. Visitors must not go near to the sick, nor remain with them longer than is absolutely necessary; they should not swallow their spittle, but clear the mouth and nostrils when they leave the room.

"V. No dependence must be placed on vinegar, camphor, or other supposed preventives; which, without attention to *cleanliness* and admission of *fresh air*, are not only useless, but, by their strong smell, render it impossible to perceive when the room is filled with bad air or noxious vapors."

there be no gastric disturbance, a full emetic of ipecac, sulphate of zinc, or mustard, may be given in hopes to arrest or cut short its progress. Later than this, or after reaction has supervened, the fever must run its course. Bearing in mind the essential adynamic character of the affection, the indications are now to sustain the vital forces, protect the important organs, modify existing symptoms, and minister to the relief of the sufferer. Attention to diet is always important. The bland articles of nutriment, arrowroot, sago, ground rice, mush, and occasionally the lighter jellies, (if they can be got,) in the acute stage; and when prostration is marked, the animal essences and broths are to be given, in small quantities, at frequent intervals, watching their effect. Demulcent beverages, such as the infusion of flax seed, milk and water, and the like, should constitute the principal drinks. Early in the disease a gentle cathartic is required; castor oil in emulsion is best. This is to be repeated, or emollient enemata substituted, as occasion requires during the course of the disease. General blood-letting is not well borne in typhus. It is better to discard it altogether. If reaction is excessive, and the vascular excitement intense, or if important organs are particularly involved, demanding venesection in ordinary cases, other means are still preferable here, remembering that the disease may at any time, sink suddenly from a state of apparent exaltation to that of depression of all the vital forces. For local affections, likewise, dry cupping may be used instead of local bleeding; and if violent vascular action is manifest, with burning surface, dry tongue, and full and accelerated pulse, recourse may be had to the administration of a mild solution of tartar emetic, and tepid sponging of the whole surface; or the milder refrigerants and neutral



mixture may be sometimes substituted with good effect, unless the bronchial and pulmonary tissues are involved. The intense cephalalgia is oftenest relieved by the application to the forehead of flannels dipped in hot vinegar and water. Nausea and uneasiness of the stomach, are best mollified by a sinapism to the epigastrium. Sleep may in most cases be induced by minute doses of the sulphate of morphia;  $\frac{1}{8}$  or even  $\frac{1}{16}$  gr. in solution, given once or twice at intervals of an hour, will often produce the desired effect. The general nervous disturbance, great sensitiveness, morbid vigilance, restlessness and subsultus, is best allayed by camphor, in doses of 4 to 6 grs. either in emulsion or the form of the ordinary camphor mixture. On the signs of adymania or general exhaustion, recourse is at once to be had to stimulants and tonics, and these once begun are oftentimes to be continued through the course of the fever, sometimes in the face of conditions commonly demanding an opposite policy. Thus not unfrequently, while dealing with some severe disturbance by local depletive means, vigorous stimulant measures are, at the same time, to be adopted, in order to keep the general system up to the vital point. Of the stimulants, the strong wines, sherry, madeira, and port, are the best. Combinations of some stimulant and tonic are often beneficial. A mixture composed of sherry and the sol. sulph. quiniæ in equal parts, (of which from  $\frac{3}{4}$  ss. to  $\frac{3}{4}$  j. may be taken every two hours,) is most excellent. When the system has been habituated to strong drinks, brandy is preferable. At the same time beef tea and the nourishing broths may often be administered with the best results.\* In the advanced stages, when there is

\* Often in conjunction with sherry, beef tea, and milk and water, p. r. n., the following, which are among the standing Hospital mixtures in Great

muttering delirium, coma, involuntary evacuations, cold extremities, a fluttering pulse, and rapid sinking of the powers of life, there may be added to the above treatment stimulating injections, hot pediluvia, friction to the spine, dry warmth, flying blisters, sinapism to the inside of the thighs, legs, and arms. Thus the flagging energies may sometimes be arrested in desperate cases.

LOCAL COMPLICATIONS and incidental affections, occurring in the acute stage, are to be treated topically but judiciously, bearing in mind the adynamic tendency of the primary disease. *During convalescence*, too much care as to premature exposure, or indiscretions in diet, cannot be observed. The appetite is to be restrained. Demulcent drinks, solutions of gum arabic, and infusions of flax seed, in conjunction with bland but nutritious food, seem well adapted to this period. Ale and porter are here of advantage, in many cases, if they can be gotten. Thus, by care and consideration, the *intractable secondary diarrhœa*, which belongs to the recovering stage, may be avoided, at the same time that the strength of the patient is sustained and increased.

Britain, may be given according as the symptoms of prostration, combined with nervous excitement, are more or less urgent:

1. *Mild Fever Mixture;*

R    Liq. ammon. acet. 3 ii.  
       mist. camph.  
       aqua distil. aa. ʒ ss.  
 M.    Ft. Haust.

2. *Strong Fever Mixture:*

R    Ammon. sesquicarb. gr. v.  
       mist. camph. ʒ jss.  
 M.    Cap. ʒ j. quâque 4tâ horâ.

The preceding paper, prepared by Dr. J. Baxter Upham, of Boston, is recommended for publication to the United States Sanitary Commission, by the Medical Commission of the State of Massachusetts.

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